BAYMURATOV, K.Yu., inzh.

Investigating the components of the SKhS-1,2 cotton-picking machine with horizontal spindles. Trakt. i sel'khozmash. no.2: 19-22 F '59. (MIRA 12:1)

1. Sredneaziatskiy nauchno-issledovatel'skiy institut mekhanizatsii i elektrifikatsii oroshayemogo zemledeliya.
(Cotton-picking machines)

POLOZ, D.D., kand. veterinarnykh nauk; POLETSKIY, V.A., kand. biologicheskikh nauk; BAYMURADOV, T.B., aspirant

Prophylaxis and diagnosis of chronical intoxications in animals. Veterinariia 42 no.5:73-76 My '65. (MIRA 18:6)

1. Vsesoyuznyy institut eksperimental'noy veterinarii.

DIKAREVICH, T.V.; GANZHA, T.I.; BAYMURATOV, U.

Utilizing waste products in Kazakhstan nonferrous metallurgy.
Izv.AN Kazakh.SSR.Ser.ekon., filos.i prava no.2:42-51 '59.
(MIRA 13:4)
(Kazakhstan--Nonferrous metallurgy)
(Waste products)

RACHKOVSKIY, S.Ya.; BAYMURATOV, U.B.

Review of N.S. Satybaldin's book "Economic efficiency of new technological processes in ferrous metallurgy." TSvet. met. 36 no.6:94-96 Je '63. (MIRA 16:7)

(Nonferrous metals--Metallurgy)

BAYMURATOV, L.B.; RACHKOVSKIY, S.Ya.

Considering the time of construction in comparing capital investment variants. Izv. vys. ucheb. zav.; tsvet. met. 6 no.3:157-164 '63.
(MIRA 16:9)

1.Moskovskiy institut stali i splavov, kafedra ekonomiki i organizatsii proizvodstva.

(Capital investments) (Metallurgical plants)

BAYMURATOV, U.B.

Economic effectiveness of reorganizing copper smelting plants.
TSvet. met. 37 no.12 s14-18 D '64 (MIRA 18:2)

BAYMURATOV, U.B., kand. ekonom. nauk

Determining the effectiveness of reorganization and enlargement of enterprises. Vest. AN Kazakh. SSR 21 no.9:27-34 S '65.
(MIRA 18:9)

BAYMURATOVA, G.

Materials on the flora of parasitic fungi on the Golodnaya Steppe.
Uzb. biol. zhur. no.3:8-15 '61. (MIRA 14:6)

1. Institut botaniki AN UzSSR.
(GOLODNAYA STEPPE--FUNGI, PHYTOPATHOGENIC)

GOVERDOVSKAYA, A.Ya.; BAYMURATOVA, G.[illegible]; KOTLYARSKAYA, A.Z.

Course of pneumonia in children under one year of age. Zdrav. Kazakh. 22 no.3:39-42 '62. (MIRA 15:12)

1. Iz kafedry detskikh bolezney fakul'teta usovershenstvovaniya vrachey (zav. - dotsent A.Ya.Goverdovskaya) Kazakhskogo meditsinskogo instituta.

(PNEUMONIA)

BAYMURATOVA, G.T.

Mycoflora of the Golodnaya Steppe. Vop.biol.i kraev.med. no.3: 27-31 '62. (MIRA 16:3)
(GOLODNAYA STEPPE—FUNGI)

BAYNAKOV, N.

Big step in the creation of the material and technical basis of communism. Komm. Vooruzh. Sil 4 no.4:8-16 F '64.
(MIRA 17:9)

1. Minister SSSR.

ZHUKOV, Pavel Konstantinovich; KAZANIN, Yuriy Ivanovich; KAYUPOV, Aryktay Kayupovich; MURSALIMOV, Khakim Ibragimovich; PIGULEVSKIY, Nikolay Arsen'yevich; SHLYGIN, Artem Yevgen'yevich. Prinimali uchastiye: BAYKENEV, Sh.A.; BAYNAZAROVA, G.; ZORIN, Ye.S.; KRIKUNOVA, N.P.; SHUKHOV, N.N.; BOK, I.I., akademik, otv. red.; NESTEROVA, I.I., red.; ALFEROVA, P.F., tekhn. red.

[Basic features of the geology and metallogeny of the Koksu-Tekeli area of the Dzungarian Ala-Tau]Osnovnye cherty geologii i metallogenii Koksu-Tekeliiskogo raiona Dzhungarskogo Alatau. Alma-Ata, Izd-vo Akad. nauk Kazakhskoi SSR, 1962. 123 p. (MIRA 15:11)

1. Institut geologicheskikh nauk (for Zhukov, Kazanin, Kayupov, Pigulevskiy, Shlyginin). 2. Yuzhno-kazakhstanskoye geologicheskoye upravleniye (for Mursalimov). 3. Akademiya nauk Kazakhskoy SSR (for Bok).
(Dzungarian Ala-Tau—Geology, Economic)

report presented at the 1st All-Union Congress of Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb '60.

35. [illegible] (Kuibyshev): On the solution of the dynamic contact problem for a half-space under conditions of axial symmetry.

36. J. Brilla (Bratislava). Anisotropic plates with discontinuous supports.

37. D. M. [illegible] (Moscow): On the essential non-linearity of certain problems on column stability.

38. [illegible] (Kiev), A. V. [illegible] (Moscow): On the determination of safety factors under alternating random loads.

39. A. V. Burlakov (Khar'kov): An experimental investigation of creep of turbine diaphragm models.

40. E. P. [illegible] (Saratov): On the stability of constructionally anisotropic circular ring plates.

41. [illegible], [illegible], [illegible] (Bucharest): The field of application of chromoplasticity.

42. [illegible] (Kiev): The state of stress of lamellar systems of regular configuration.

43. V. V. [illegible] (Moscow): Thixotropic properties of lubricants on basis of their rheological characteristics.

44. [illegible], [illegible] (Kiev): Application of Mathieu functions to the investigation of shells.

45. P. M. Varvak (Kiev): Determination of stresses and deformations in massive bodies.

46. [illegible] (Gorkii): The flow of bitumens and filled bitumens in pipes.

47. I. N. Vekua, N. I. Muskhelishvili (Tbilisi): Applications of analytic functions in the theory of elasticity.

48. [illegible] (Tbilisi), [illegible] (Erevan): Experimental investigation of the behavior of eccentrically compressed short columns for long loading times.

49. G. V. Vinogradov (Moscow), A. A. [illegible] (Kazan), V. P. Pavlov (Moscow): Investigation of soft plastic bodies under combined states of stress.

50. G. V. Vinogradov, V. P. Pavlov (Moscow): Basic peculiarities of the mechanical properties of plastic lubricants.

51. [illegible] (Leningrad): Fundamentals of the linear theory of visco-elastic impact.

52. [illegible] (Khar'kov): The solution of dynamic contact problems for foundations using a simplified model.

53. [illegible] (Moscow): On the equilibrium equations of thick elastic plates.

54. [illegible] (Igarka): The creep of ice and frozen soils under combined stresses.

55. M. P. Volarovich, [illegible], [illegible], [illegible] (Moscow): Studies of viscoelastic properties of porous bodies (e.g. peat) by the ultrasonic pulse method.

56. M. P. Volarovich (Moscow), A. [illegible] (Minsk): The plane flow of a visco-plastic medium between two planes forming an acute angle.

57. M. P. Volarovich, [illegible] (Moscow): Kinematics and dynamics of the flow of visco-plastic dispersed media past bodies of different shapes.

58. A. S. Vol'mir (Moscow): On the analysis of a short closed cylindrical shell.

59. [illegible], [illegible] (Sverdlovsk): On the distribution of elastic constants in quasi-isotropic polycrystalline media.

60. [illegible] (Rostov-na-Donu): A statistical method in the stability theory of shells.

61. I. I. Vorovich (Rostov-na-Donu), A. S. [illegible] (Saratov): On stress concentration in a plane with an infinite number of holes.

62. [illegible] (Leningrad): Foundations of the general engineering theory of elastic beams.

63. S. S. Vialov (Moscow): The laws of deformation of ice.

64. S. S. Vialov (Moscow): The laws of motion of ice crusts and the theory of visco-plastic flow based on research in the Antarctic.

65. [illegible] (Leningrad): A method of obtaining polynomial stress and displacement functions.

66. [illegible] (Kazan): A contribution to the theory of the finite deformations of thin shells.

67. [illegible] (Moscow): The propagation of elastic-plastic bending and shear waves in the axisymmetrical deformations of shells.

BAYNBERG, M.M.

"The Existence of Solutions in One System of Non-Linear Integral Equations," Dok AN 63, No. 6, 1948

COUNTRY : USSR M
CATEGORY : CULTIVATED PLANTS. Potatoes. Vegetables. Cucurbits.
ABS. JOUR. : RZh BIOLOGIYA, NO. 4, 1959, No. 15653

AUTHOR : Baynberg, N.
INST :
TITLE : Obtaining a Harvest from Sprouting Potatoes.

ORIG. PUB. : Zemledeliye i zhivotnovodstvo Moldavii, 1957, No.5, 70-71

ABSTRACT : The out-growth of tubers of average and late varieties of potatoes is observed in the southern districts of Moldavia, and in hot and humid years also in the middle zone of the republic. Experiments conducted in irrigated plots, showed the possibility of using out-growing tubers with sprouts for summer plantings and getting crops reaching 22 tons/hectare.

:

CARD: 1/1

BAYNBOYM, D.I.

Avtomaticheskaia i poluavtomaticheskaia svarka pod fliusom (Automatic and semi-automatic welding under flux). Leningrad, Sudpromgiz, 1952. 243 p.

SO: Monthly List of Russian Accessions, Vol. 6, No. 1, April 1953

[illegible], T. I.

"Thrush as a Cause of Vulvovaginitis in Children".

Vestnik vererologii i dermatologii /Bulletin of Venerology Dermatology/ No 1, January-February 1951 (biomper), Moscow.

BAYNDUROV, V.S., inzh.; TOPORSKIY, V.K., inzh.; TKACHENKO, L.A., inzh.

Pulley with a built-in planetary reducing gear. Izv. vys. ucheb.zav.; mashinostr. no.10:104-106 '64 (MIRA 18:1)

1. Khar'kovskiy inzhenerno-ekonomicheskiy institut i Khar'kovskiy mashinostroitel'nyy zavod "Krasnyy Oktyabr'".

BAYNIYETOVA, F.K.

ZEBREVA, A.I.

5(2)

PHASE I BOOK EXPLOITATION SOV/1699

Akademiya nauk Kazakhskoy SSR. Institut khimicheskikh nauk

Issledovaniya po elektrokhimii vodnykh rastvorov i rasplavov i amal'gamnoy metallurgii (Research on the Electrochemistry of Water Solutions, Fusions and Amalgam Metallurgy) Alma-Ata, Izd-vo AN Kaz. SSR, 1958. 182 p. (Series: Its: Trudy, t. 3) 1,300 copies printed.

Ed.: V.V. Aleksandriyskiy; Tech. Ed.: Z.P. Borokina; Editorial Board of Series: I.I. Lobetis, V.M. Ilyushchenko, G.Z. Kir'yakov (Deputy Resp. Ed.), M.T. Kozlovskiy, (Resp. Ed.) and L.N. Sheludyakov.

PURPOSE: This book is intended for scientists and engineers in the electrochemical and nonferrous metal industries.

COVERAGE: This collection contains 14 reports by the Laboratories for Analytical Chemistry and Electrochemistry attached to the Institute of Chemical Sciences, Academy of Sciences, Kazakhstan Republic. The amalgam method of obtaining thallium from lead powder, the electrolysis of sulfate solutions of zinc and the impoverishment of waste slag during nickel production are described. The majority of articles have a practical nature and deal with problems of developing and perfecting new electrochemical methods for the production of non-ferrous metals.

Card 1/3

Kir'yakov, G.Z., and F.K. [illegible]. The Influence of Some Metal Ion Admixtures on the Cathode Process During the Electrolysis of Zinc Sulfate Solutions Under Conditions of High Current Density 64

Kir'yakov, G.Z., F.K. [illegible], and R.S. Vakhidov. Role of Manganese in the Zinc Electrodeposition Process 72

Vakhidov, R.S., and G.Z. Kir'yakov. Electrodeposition of Cadmium Under Conditions of High Current Densities 82

Bunayev, Yu. D., and G.Z. Kir'yakov. Lead-based Current Anodes 87

Balabin, A.A., L.N. Sheludyakov, Yu. D. Bunayev, and G.Z. Kir'yakov. Impoverishment of Fused Waste Slag From the Production of Nickel by the Displacement Method. Part I. 102

Sheludyakov, L.N., and G.Z. Kir'yakov. Impoverishment of Fused Waste Slag From the Production of Nickel by the Displacement Method. Part II. 111

Sheludyakov, L.N., and G.Z. Kir'yakov. Impoverishment of Fused Waste Slag From the Production of Nickel by the Displacement Method. Part III. 118

AVAILABLE: Library of Congress TM/mas

Card 3/3

KIR'YAKOV, G.Z.; BAYNIYETOVA, F.K.

Effect of the impurities of some metal ions on the cathode processes during the electrolysis of zinc sulfate at high current densities. Trudy Inst. khim. nauk AN Kazakh. SSR 3:64-71 '58. (MIRA 12:3)

(Zinc sulfate) (Electrolysis)

KIR'YAKOV, G.Z.; BAYNIYETOVA, F.K.; VAKHIDOV, R.S.

Effect of manganese on the electrodeposition of zinc. Trudy Inst. khim. nauk AN Kazakh. SSR 3:72-81 '58. (MIRA 12:3)
(Zinc) (Electroplating) (Manganese)

KIR'YAKOV, G.Z.; RAYNIYETOVA, F.K.

Electrolysis of sulfate solutions of zinc. Trudy Inst.khim.nauk AN Kazakh.SSR 6:86-93 '60. (MIRA 14:4)
(Zinc--Electrometallurgy)

BAYNIYETOVA, F.K.; KIR'YAKOV, G.Z.

Simultaneous discharge of zinc and hydrogen ions in sulfuric acid solutions. Zhur.prikl.khim. 35 no.4:903-905 Ap '62. (MIRA 15:4)

(Zinc) (Sulfuric acid) (Electromotive force)

BUNDZHE, V.G.; KIR'YAKOV, G.Z.; BAYNIYETOVA, F.K.

Effect of titanium sulfate on the electrodeposition of zinc from sulfate solutions. Trudy Inst. khim. nauk AN Kazakh.SSR 12:18-25 '64. (MIRA 18:2)

ACC NR: AP7002827 SOURCE CODE: UR/0142/66/009/006/0714/0718

AUTHOR: Boyanov, Y. D.; Baynov, D. D.; Marinov, Yu. P.; Partinova, N. A.

ORG: none

TITLE: Theory of transistorized LC-oscillators having n oscillatory circuits

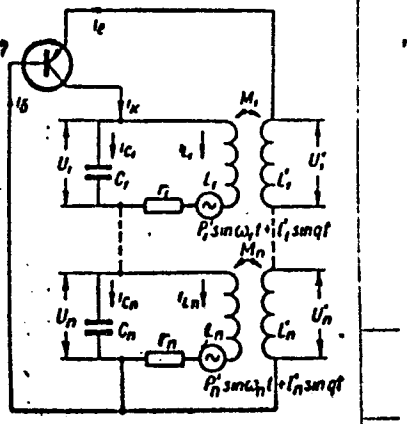
SOURCE: IVUZ. Radiotekhnika, v. 9, no. 6, 1966, 714-718

TOPIC TAGS: electronic oscillator, transistorized oscillator, oscillation theory

ABSTRACT: A theory is set forth of an n-circuit transistorized oscillator that has inductive feedback and is excited by external harmonic voltage (see figure). The transistor is connected in a common-base circuit, and the coupled oscillatory circuits are connected to its collector. Operation of this oscillator is described by differential equations, examination of whose solutions yields this condition of asymptotic stability:

$$2b_\kappa + 2V_\kappa + d_\kappa E^2 < 0,$$

$(\kappa = 1, 2, \ldots n).$



Card 1/2 UDC: 621.373.52.11

ACC NR: AP7002827

in the general (nonresonance) case. In the notation of the article, the above condition means that, in order to ensure stable oscillations, the oscillatory-circuit parameters and the oscillator operating regime should be so proportioned that r_k is very small and β_0 and b, negative; transistor voltage gain, $\beta = \beta_0 + aU_e + bU_e^2$. Further examination shows that the same stability condition holds true for resonance case. Orig. art. has: 1 figure and 25 formulas.

SUB CODE: 09 / SUBM DATE: 01Nov65 / ORIG REF: 003 / OTH REF: 001

Card 2/2

L 06158-67
ACC NR: AP6018136 SOURCE CODE: PO/0095/65/013/009/0151/0154

AUTHOR: Baynov, D. D.; Marinov, Yu. P.; Stanev, Kh. I.

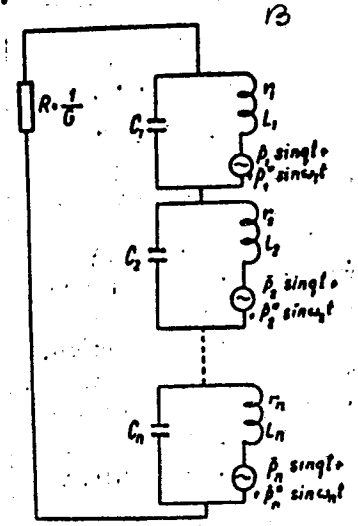
ORG: none

20
13

TITLE: Theory of some multicircuit negative-resistance LC-oscillators

SOURCE: Polska akademia nauk. Bulletin. Serie des sciences techniques, v. 13, no. 9, 1965, 151-154

TOPIC TAGS: electronic oscillator, oscillator theory



ABSTRACT: Conditions of existence of stable self-oscillations in a multicircuit oscillator (see figure) to which an external sinusoidal voltage is applied are considered. The nonlinear negative resistance is denoted by R = 1/G. Operation of the oscillator is described by a system of differential equations. The equations are solved for a particular case when the external frequency is equal to one of the oscillator natural frequencies. The periodic solution yields these relations: $\left|\frac{s_1\omega_1}{4}A_0^3 - a\omega_1 A_0 - p_1^\circ\right| = 0$, where A_0 is a real root; and

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$$\frac{3s_1}{4}A_0^2 - a < 0,$$

$$2d_p - 2b_p + s_p\left(A_0^2 + \frac{B_0^2}{\omega_1^2} + E^2\right) < 0 \qquad (p = 2, 3, \ldots n).$$

These relations are recommended for use in designing multicircuit oscillators. Orig. art. has: 1 figure and 20 formulas.

SUB CODE: 09 / SUBM DATE: 18Aug65 / ORIG REF: 000 / OTH REF: 001

Card 2/2 mfe

L 4359-66 EWT(d) IJP(c)

ACC NR: AP5028413 SOURCE CODE: BU/0011/65/018/001/0005/0006

AUTHOR: Plotnikova, G.; Baynov, D. 44,55 44,55 44,55

ORG: Institute of Mechanics, AN SSSR, Moscow (Institut mekhaniki, AN SSSR); Machine-Electrotechnical Institute, Sofia (Mashinno-elektrotekhnicheskiy institut) 44,55

TITLE: Solvability with respect to higher derivatives of a system of differential equations dependent on a small parameter 16,44,55

SOURCE: Bulgarska akademiya na naukite. Doklady, v. 18, no. 1, 1965, 5-6

TOPIC TAGS: differential equation, small parameter, motion equation

ABSTRACT: /Russian article/ The authors investigate the mechanical system with n degrees of freedom whose equations of motions are of the form

$$\ddot{x} + \omega^2 x = f + \mu F(t, x, \dot{x}, \ddot{x}, \mu) \qquad (1)$$

Here f, F, x, $\dot{x}$, and $\ddot{x}$ are n-dimensional vectors while ω^2 is represented by an n-dimensional diagonal matrix. The components of f are assumed continuous periodic functions of time (of period 2π), the components of F are analytic functions with respect to all its arguments and are continuous functions of time (with the same periodic 2π), and the quantity μ represents a small parameter. This paper presents the reduction of (1) to the normal system

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L 4359-66

ACC NR: AP5028413

$$\ddot{x} + \omega^2 x = f + \mu F(t, x, \dot{x}, \mu), \qquad (2)$$

whose properties are well known. The existence and stability conditions of the periodic solutions of (2) can then be used directly for the study of system (1). The paper was presented by Academician Kh. Khristov 26 Aug 64. Orig. art has: 8 formulas. [JPRS]

SUB CODE: MA / SUBM DATE: 26Aug64

Card 2/2

BAYNOV, D., inzh. (Bolgariya); BIYAZOV, I., inzh. (Bolgariya); ZAPRYANOV, I., inzh. (Bolgariya)

Electromechanical differentiating element. Priborostroenie no.4: 11-12 Ap '65. (MIRA 18:5)

BAYNOV, D.D. (Sofiya, Bolgariya); MAKIMOV, Yul.P. (Sofiya, Bolgariya); PLOTNIKOVA, G.V. (Moskva)

Periodic oscillations of an auto-oscillator with n-oscillating circuits. Inzh. zhur. 5 no.3:395-398 '65. (MIRA 18:7)

L [illegible] EWP(w) ES

ACCESSION NR: AP5014661 RU/0019/65/010/002/0371/0378

AUTHOR: Florianova, G. V.; Baynov, D. D.

TITLE: Periodic oscillations of a mechanical system with n degrees [illegible]

SOURCE: Revue Roumaine des sciences techniques. Serie de mecanique appliquee, v. 10, no. 2, 1965, 371-378

TOPIC TAGS: oscillation theory, mechanical system oscillation, periodic oscillation, periodic solution

ABSTRACT: A mechanical system with n degrees of freedom whose motion is described by the system of equations

$$\ddot{x}_k + \omega_k^2 x_k = \mu F_k(t, x_1, \ldots, x_n, \dot{x}_1, \ldots, \dot{x}_n, \mu) + f_k(t), (k = 1, 2, \ldots, n) \quad (1)$$

where u is a small parameter and ω_k^2 are certain real constants is studied under the assumptions that $f_k(t)$ are continuous periodic functions with the period 2π, and F_k are analytic functions with respect to $\dot{x}_k$, x_k, and μ and continuous, periodic functions of time

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L 54884-65
ACCESSION NR: AP5014661

with the period 2π. The periodic solution of system (1) with the period 2π is sought, which at μ = 0 becomes a particular solution of the generating system (system (1) at μ = 0). The general structure of such solutions and the conditions for their existence are established in the case of $l \leq n$ resonance frequencies. The solution of (1) is obtained in the form of the series

$$x_k(t) = x_{k0}(t) + \mu x_{k1}(t) + \mu^2 x_{k2}(t) + \ldots, \quad (k = 1, 2, \ldots, n), \qquad (2)$$

and the procedure for calculating its coefficients $x_{ks}(t)$ ($k = 1,2, \ldots, n$; $s = 1,2,3 \ldots$) is described. Orig. art. has: 31 formulas. [LK]

ASSOCIATION:
Mashino-elektrotekhnicheskiy institut, Sofiya (Mechanical and Electrical Engineering Institute)

SUBMITTED: 10Jun64 ENCL: 00 SUB CODE: ME, MA

NO REF SOV: 004 OTHER: 001 ATD PRESS: 4031

Card 2/2

80537
S/126/60/009/05/023/025
E021/E335

18.7500

AUTHORS: Rybalko, F.P., Baynov, M.A. and Katanov, L.M.

TITLE: Artificial Growing of Undeformed Single Crystals of a Given Form and Surface Cleanliness

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 5, pp 796 - 797 (USSR)

ABSTRACT: The substance of the method of growing single crystals with the above requirements is the following. A specimen with the required form and surface purity is prepared mechanically from a polycrystalline sample. In one place it ends with a projecting sharp cone. The specimen is placed with the cone underneath, in a metal container which is filled with finely dispersed powder. The powder is finer than the roughness of the surface of the crystal required. The container is placed in an electric furnace, the centre of which is at a temperature above the melting point of the metal. It is then pulled through the furnace slowly, controlled by a clock mechanism. To extract the single crystal grown in this way, it is sufficient to tap the container lightly. Various metallic oxides can be used as the powder. Aluminium oxide has been used for

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S/126/60/009/05/023/025
E021/E335

Artificial Growing of Undeformed Single Crystals of a Given Form and Surface Cleanliness

aluminium and zinc oxide for zinc single crystals. The powder is heated to 200 to 300 °C before use to remove moisture. Single crystals of various shapes have been prepared in this way. A zinc single crystal is shown in the photograph. There is 1 figure.

Card 2/2

BAYNOVA, M. S.

"Investigating the Series of Isochinolic Unions: Synthesis of Iodo-n-Methyl-1-(4'-Metoxin-Benzyl)-6-Metoxin-1,2,3,4-Tetrahydroisophenal Methane," Zhur. Obshch. Khim. 17, No. 9, 1947.

Inst. Fine Chemical Technology im. M. V. Lomonosov

BAYNOVA, M., S.,

Pa. 173T23

USSR/Chemistry - Pharmaceuticals Dec 50
Medicine - Amobic Dysentery

"New Synthesis of the Alkaloid Emetine," R. P. Yevstigneyeva, R. S. Livshits, L. I. Zakharking, M. S. Baynova, N. A. Preobrazhenskiy

"Dok Ak Nauk SSR" Vol IXXV, No 4, pp 539-542

In addn to being specific remedy against amoebic dysentery, emetine is effective against Trematodes and some bacteria which produce serious diseases in man and animals. Most probable formula for emetine, advanced by authors, corresponds to R. Robinson's formula based on theory of physiological conditions ("Nature," Vol CLXII, No 524, 155, 1948.) Formula has now been confirmed by authors, who carried out complete synthesis of racemic emetine in several different ways. Two reaction schemes illustrate authors' complete synthesis.

Pa. 173T23

BAYNOVA, M. S.

191T31

USSR/Chemistry - Alkaloids Jul 51

"Investigation Into a Series of Isoquinoline Compounds. III. Synthesis of n-Methyl-1-(3',4'-Dimethoxybenzyl)-5,6-Dimethoxy-1,2,3,4-Tetrahydroisoquinoline," R. S. Livshits, M. S. Baynova, G. I. Basilevskaya, E. I. Genkin, N. A. Preobrazhenskiy, and Yu. M. Rozanova, Z. A. Baranova, Students, Moscow Inst Fine Chem Technol imeni M. V. Lomonosov

"Zhur Obshch Khim" Vol XXI, No 7, pp 1354-1360

Accomplished synthesis of n-methyl-1-(3', 4'-dimethoxybenzyl)-5,6-dimethoxy-1,2,3,4-tetrahydroisoquinoline by a procedure which is a model for the

191T31

USSR/Chemistry - Alkaloids (Contd) Jul 51

synthesis of n-methyl-1-(3',4'-dimethoxybenzyl)-5,6-dimethoxy-7-dimethylamino-1,2,3,4,5,6,7,8-octahydroisoquinoline, the fundamental intermediate substance in the synthesis of morphine.

191T31

BAYNOVA, M. S.

USSR/Chemistry - Pharmaceuticals

Jul 51

"Investigation Into a Series of Isoquinoline Compounds. IV. Synthesis of 1-/B(B'-Byridyl)-Ethyl/-6,7-Dimethoxy-1,2,3,4-Tetrahydroisoquinoline," R. S. Livshits, R. P. Yevstigneyeva, M. S. Baynova, N. A. Preobrazhenskiy, Moscow Inst Fine Chem Technol imeni M. V. Lomonosov

"Zhur Obshch Khim" Vol XXI, No 7, 1360-1364

Synthesized over intermediate comds (many not earlier described inliterature) isoquinoline deriv, listed above, opening way to synthesis of analogues of emetine close to it in structure. Footnote states that subsequent to submission of article to editors (30 Mar 49) above authors and L. I. Zakharkin completed synthesis of emetine, established its constitution as 4',5'-dimethoxy-6-ethyl-7-(1"-methyl-6",7"-dimethoxy-1", 2", 3", 4"-tetrahydroisoquinolyl)-3,4,5,6,7,8,9,10-octahydro-1,2:1',2'-benzoquinolidine (structural formula is shown), which differs from constitution proposed by Brindley and Pyman.

191T32

BAINOVA, M. S.

Evstigneev, R. P., Livshits, R. S., Bainova, M. S., Zakharkin, L. I., Preobrazhenskii, N. A.- "Isoquinoline compounds. V. Synthesis of the natural alkaloid emetine." (p. 1467)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1952, Vol. 22, No. 8

BAYKOVA, M. S.

hemical Abst.
ol. 48 No. 3
eb. 10, 1954
rganic Chemistry

Isoquinoline compounds. VII. Synthesis of 3-[(1,1-diethoxymethyl)propyl]glutaric acid. M. S. Baikova, R. P. Evstigneeva, R. S. Livshits, K. K. Kuz'mina, and N. A. Preobrazhenskii (M. V. Lomonosov Inst. Fine Chem. Technol., Moscow). *Zhur. Obshchei Khim.* 23, 110-52 (1953); cf. *C.A.* 47, 7507*b*.—Heating 60 g. PrCHO, 87 g. $CH_2(CO_2H)_2$, 40 ml. pyridine, and a few drops piperidine 3 hrs. at 60–70° and 3 hrs. at 110° gave 79% *PrCH:CHCO₂H*, b_5 98–102°, n_D 34–5°. Heated with EtOH and H_2SO_4 it gave 76% Et ester, b. 174–5°. This (80 g.) and 50 g. HCO_2Et added to 13 g. Na in 400 ml. MePh and allowed to stand 1 day gave a ppt. of *Na deriv.* of *EtCH(CHO)CH:CHCO₂Et*, which treated with ice, the aq. soln. extd. with C_6H_6 and the aq. layer acidified with H_3PO_4 to Congo red and extd. with Et_2O gave, on evapn. of Et_2O, 54% crude *EtCH(CHO)CH:CHCO₂Et* (I); this distd. in N atm. in the presence of a little urotropin, b_1 65–70°, d_4^{20} 1.0412, n_D^{20} 1.4648; the product gives violet color with $FeCl_3$ and its *MR*, indicates that it is nearly all oxo form. The product tends to polymerize on repeated distn. The Na deriv. of the above ester (11 g.), 12 g. abs. EtOH, and 45 ml. Et_2O satd. with HCl (4.6 g. added) were stirred with cooling 2 hrs., then 14 hrs. at room temp., neutralized with $NaHCO_3$, filtered, and distd., yielding 30.5% *EtC(:CHOEt)CHCl-CH₂CO₂Et* (II), b_5 68–78°, d_4^{20} 0.9927, n_D^{20} 1.4450. I (5 g.) and 4.35 g. $HC(OEt)_3$ treated with 0.1 g. NH_4Cl in 2 ml. abs. EtOH and heated on steam bath 30 min., allowed to stand overnight, decanted and the soln. treated with 2 vol. Et_2O and washed with 5% NH_4OH gave on distn. of the org. layer 35.6% *EtCH[CH(OEt)₂]CH:CHCO₂Et* (III), $b_{4.5}$ 78–83°. To EtONa from 4 ml. EtOH and 0.22 g. Na was added at 30–40° 3 g. $CH_2(CO_2Et)_2$, kept 30 min. and treated with 2 g. II and heated 5 hrs.; after concn. and treatment with H_2O the org. layer gave 55.7% *EtC(:CHOEt)-CH[CH(CO₂Et)₂]CH₂CO₂Et*, $b_{0.5}$ 148–9°. To 0.6 g. Na in 10 ml. EtOH was added 7.8 g. $CH_2(CO_2Et)_2$ and 6 g. III and heated on water bath 5 hrs.; after usual aq. treatment there was obtained 48.3% *EtCH[CH(OEt)₂]CH[CH(CO₂-Et)₂]CH₂CO₂Et*, b_1 160–3°. This (5.5 g.) refluxed with 4.6 g. KOH, 45 ml. H_2O and 45 ml. MeOH 5 hrs., concd.,

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11-9-54

chilled, acidified with HCl and extd. with Et_2O gave 37% $EtCH[CH(OEt)_2]CH(CH_2CO)_2O$, b_1 155 7°. VIII. **Condensation of substituted β-propylglutaric acids with homoveratrylamine.** E. I. Zukharkin and N. A. Preobrazhenskii (M. B. Lomonosov Inst. Fine Chem. Technol., Moscow). *Ibid.* 153–5.—Letting 4.5 g. *γ-ethyl-β-sulfo-γ-methoxy-β-acetic acid* (I) stand with 5 ml. $SOCl_2$ 2 hrs. gave the corresponding *acyl chloride*, b. 157–8°, in 47% yield. This (3.7 g.) in C_6H_6 added to 3.4 g. homoveratrylamine and 1.7 g. pyridine in C_6H_6 and stirred 1 hr., then treated with H_2O gave 88% *corresponding N-homoveratrylacetamide*, $C_{18}H_{29}O_5N$, a viscous oil. This (5 g.), 7.5 ml. $POCl_3$ and 50 ml. MePh refluxed 1 hr., decanted, the residue treated with 30 ml. dil. HCl, the soln. freed of tar and treated with NaI soln. and extd. with $CHCl_3$ gave 32% yellow *γ-ethyl-β-[(3,4-dihydro-6,7-dimethoxy-1-isoquinolyl)methyl]-δ-valerolactone-HI*, m. 199–201° (from EtOH); *picrate*, m. 181–2°. I in EtOH satd. with dry HBr at 0° gave after 1.5 days 72% $EtO_2CCH_2CH(CHEtCH_2Br)CH_2CO_2Et$, b_2 140–1°, n_D^{25} 1.4628, which (5 g.) with 12 g. homoveratrylamine in MePH and reflux 2.5 hrs. gave *Et N-homoveratryl-δ-ethyl-α-piperidone-γ-acetate*, b_1 227–31°, 21.6%. Heating I (3 g.) with 8 g. homoveratrylamine 4 hrs. at 190–200° gave 68% *dihomoveratrylamide* of *β-(α'-hydroxymethyl)propylglutaric acid*, $C_{36}H_{48}O_7N_2$, a viscous oil. Heating $HO_2CCH_2CH(CHEtCH_2Br)CH_2CO_2H$ with $SOCl_2$ 2 hrs. at 50° gave the *acyl chloride*, 77.5%, b_1 141–3°, which added in C_6H_6 to homoveratrylamine with cooling gave 83% *dihomoveratrylamide* of *β-(α'-bromomethyl)-propylglutaric acid*, a viscous oil (from EtOH-Et_2O). The products are intermediates for synthesis of *cuscline*.

G. M. Kosolapoff

BAINOVA, M.S.

"Isoquinoline compounds. Part 10. Synthesis of 1-[(N-decyl) -3' -piperidyl] -ethyl-6, 7-dimethoxy-1, 2, 3, 4-tetrahydro-isoquinoline." Livshits, R. S., Bainova, M. S., Kuprianova, S. N., Preobrazhenskii, N. A. (p. 522)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1953, Volume 23, No.3.

BAINOVA, M. S.

"Isoquinoline compounds. Part 11. Synthesis of 1-β-[/N- -(3 "4"-dimethoxyphenyl) -ethyl/ -3'-piperidyl] -ethyl-6,7-dimethoxy-1, 2, 3, 4,-tetrahydroisoquinoline." Livshits, R. S., Bainova, M. S., Gurevich, A. I., Preobrazhenskii, N. A. (p. 525)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1953, Volume 23, No.3.

5(3) SOV/153-58-2-13/30

AUTHORS: Bazilevskaya, G. I., Baynova, M. S., Gura, D. V., Dyumayev, K. M., Preobrazhenskiy, N. A.

TITLE: Synthesis of the Alkaloid Cocaine (Sintez alkaloida kokaina)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 2, pp 75-81 (USSR)

ABSTRACT: At the beginning, use, occurrence, and structural formula of cocaine are repeated. According to the structure theory, four racemic stereoisomers of cocaine are possible: racemic cocaine (Ref 3), racemic pseudo-cocaine (Ref 4), racemic allococaine (Ref 5), and racemic allo-pseudo-cocaine (Refs 5,6), as well as a corresponding number of optically active compounds. Various methods of synthesis for cocaine have been published (Refs 3,7,8-11). In the present paper, the synthesis according to the scheme (Page 76) is described. Pharmacological investigations in the Minskiy meditsinskiy institut (Minsk Medical Institute), carried out by Professor K. S. Shadurskiy and N. A. Iskarev, Graduate Student, on samples of the authors proved that racemic cocaine is not inferior to the natural levorotary cocaine regarding its local-anaesthetic properties (on the

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Moscow Inst Fine Chem. Technology

cornea of the rabbit). But, on the other hand, it is less toxic. The investigations of the latter two scientists (Ref 14) led to the conclusion that it is frequently advisable to use racemic hydrochloric cocaine without cleaving it in antipodes. In the experimental section the synthesis of the following compounds, being cocaine constituents, is described: 1) 2,5--diethoxy-2,5-dihydrofuran (I), 2) 2,5-diethoxy-tetrahydrofuran (II), 3) di-potassium-salt of the monomethylester of acetone-dicarboxylic acid, 4) methyl-ester of the tropan-3-one-2--carboxylic acid (III), 5) the methyl-esters of racemic ecgonine (IV a) and of racemic pseudo-ecgonine (IV b), 6) racemic cocaine (base), 7) racemic hydrochloric cocaine. Conclusions: 1) In this paper the method of synthesis of the salt mentioned in 7) was elaborated. 2) The conditions of condensation of succin-dialdehyde with methylamine and with the salt mentioned in 3) to the compound (III) have been investigated. 3) A method of quantitative determination of compound (III) in the reaction mixture after the formation of the water-insoluble reineckate was suggested. 4) A stereo-oriented reduction of compound (III) to the methyl ester of racemic ecgonine was realized. There are 14 references, 4 of which are Soviet.

Card 2/3

79-28-4-55/60

AUTHORS: Bazilevskaya, G. I., Gura, D. V., Baynova, M. S., Dyumayev, K. M., Sarycheva, I. K., Preobrazhenskiy, N. A.

TITLE: Synthesis of Tropane-3-α-ol, Tropine (Sintez tropan-3-α-ola, tropina)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol.28, Nr 4, pp.1097-1105 (USSR)

ABSTRACT: The representatives of the tropane group (cocaine, atropine, tropine and also their natural and synthetic derivatives) play a considerable part among alkaloids. The presence of substituents in the pyrrolidine - piperidine grouping causes the possibility of different stereoisomeric forms of the tropane alkaloids. Thus, 4 configurations, and according to it 4 racemic isomers are known for cocaine. It was found that the compounds synthesized in 1956 allococaine, allo--pseudo-cocaine and the tropeines are derivatives of tropane--3-ole of tropine (formula I) while natural cocaine and pseudo-cocaine have the structure of pseudo-tropine (formula II) (Ref 1).

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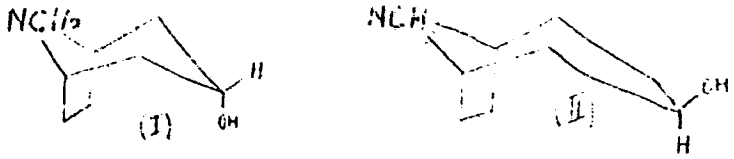
79-28-4-55/60

Synthesis of Tropane-3-α-ol, Tropine



These two tropane-3-oles can be represented by reduction of the corresponding ketone tropinone. For the production of one or the other isomer not only the selection of the hydration agent but also the conditions of the carrying out of the reaction play an important part. In the present work the sterically directed reduction of tropinone to tropine carried out by the authors is described. Synthesis of tropinone was made by 3 methods described in technical publications: 1) Karrer and Alagil (Ref 6); 2) Willstätter, Wolfes and Mäder (Ref 8); 3) Gal, Simoniy and Tokar (Ref 10). In order to improve these 3 methods some modifications were made. Succinic dialdehyde which is necessary as starting product for the synthesis of tropinone according to the last two methods was represented by the authors according to 4 different methods which are all given in detail. On

Card 2/4

Synthesis of Tropane-3-α-ol, Tropine

79-28-4-55/60

this occasion acetylene or ethyl acetal of the bromoaceto-aldehyde or succinic diethyl ester or furane served as starting product. The method of representation based on succinic diethyl ester was elaborated anew by the authors. The authors investigated a series of methods in order to find conditions for a stereo directed reduction of tropinone to tropine: reduction with sodium amalgam as well as electrolytic and catalytic hydration under different conditions. Tropane-3-oles with different content of stereo-isomers are formed according to reaction conditions, but only in the presence of a nickel catalyst at 60 atmospheres pressure and 20° they succeeded in obtaining tropine without a content of pseudo-tropine. The thus synthesized tropine proved identical with that isolated from natural alkaloid atropine.

All synthesis reactions mentioned are described in detail in an extensive experimental part. There afe 29 references, 1 of which is Soviet.

Card 3/4

Moscow Inst. Fine Chem Tech.

79-28-5-11/69

AUTHORS: Yevstigneyeva, R. P., Kashnikova, N. M., Baynova, M. S., Preobrazhenskiy, N. A.

TITLE: Investigations in the Series of Isoquinoline Compounds (Issledovaniya v ryadu izokhinolinovykh soyedineniy) XII. Synthesis of 4',5'-Dimethoxy-5,6-Dimethyl-7-(1"-Methyl--6",7"-Dimethoxy 1",2",3",4" tetrahydroisoquinolyl)--3,4,5,6,7,8-Hexahydro-Benz-(1',2'; 1,2)-Quinolisine (XII. Sintez 4',5'-dimetoksi-5,6-dimetil-7-(1"-metil-6",7"-dimetoksi--1",2",3",4"-tetragidroizokhinolil)-3,4,5,6,7,8-geksagidro--benz-(1',2';1,2)khinolizina)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 5, pp. 1184 - 1189 (USSR)

ABSTRACT: One of the most interesting properties of the alkaloid emetine (formula I of scheme 1) is its capability to convert into the red-colored compound, the so-called rubremetine (Reference 1-3) on the action of light oxidizing agents. Its structure has hitherto not been determined although some proposals in this respect were uttered (Reference 4-8). The most probable

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Investigations in the Series of Isoquinoline Compounds. XII.

formulae of those suggested for rubremetine demand the formation of a ring system with the hydrocarbon atom C_8 taking part in it. The formation of such a system would be very difficult in the presence of the substituent of the above-mentioned carbon atom, as has to be assumed. In order to carry out a more detailed investigation of the influence of the ring substituent on the formation of rubremetine the authors carried out the synthesis of two analogs of emetine which have two alkyl substituents in two free positions at the carbon atoms C_5 and C_8, namely: of 4',5'-dimethoxy-5,6--dimethyl-7-(1"-methyl-6",7"-dimethoxy-1",2",3",4"-tetrahydroisoquinolyl)-3,4,5,6,7,8-hexahydro-benz-(1'2' : 1,2)--quinolisine (IV) and of 2) 8-methyl-emetine (V) (see scheme 2). The synthesis of the former is the subject of this report. The compound (IV) is also of interest because it corresponds to one of the assumed structures. As a basis for the synthesis the scheme 3 elaborated for emetine (Reference 9) was used. Thus the synthesis of the 4,5'-dimethoxy-5,6-dimethyl-7-

Investigations in the Series of Isoquinoline Compounds. XII.

-(1"-methyl-6",7"-dimethoxy-1",2",3",4"-tetrahydroisoquinolyl)--3,4,5,6,7,8-hexahydro-benz(1',2' : 1,2)- quinolisine analogous to emetine was realized. The authors obtained a rubro--compound in the oxidation with bromine of the product analogous to emetine and thus proved that the substituent at the carbon atom C_5 does not impede the formation of a rubremitine analog. There are 1 figure and 9 references, 1 of which is Soviet.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute for Fine Chemical Technology)

SUBMITTED: April 18, 1957

Card 3/3

S/079/60/030/05/13/074
B005/B002

AUTHORS: Bazilevskaya, G. I., Baynova, M. S., Dyumayev, K. M., Preobrazhenskiy, N. A.

TITLE: Synthetic Investigations in the Field of Isomeric Cocaine.[1] V. Synthesis of Methyl Ester of Tropanol-3α-carboxylic Acid-2β (Alloecgonine) and of Tropanol-3α-carboxylic Acid-2α (Allopseudoecgonine)

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 5, pp. 1458-1461

TEXT: The methyl ester of tropanol-3-carboxylic acid-2 may occur in 4 racemic and 8 optically active forms, whose structural formulas are given (I-IV and the corresponding antipodes and racemates). Only the two forms I and II occur in nature. No more than a few little informative data are contained in publications concerning the other two forms III and IV (Refs. 1,3,4). The authors of the present paper investigated a number of catalytic, electrochemical, and chemical methods of hydrogenation, in order to obtain the isomeric methyl esters of alloecgonine (racemate of III) and of allopseudoecgonine (racemate of IV) from the

Synthetic Investigations in the Field of Isomeric Cocaine. V. Synthesis of Methyl Ester of Tropanol-3α-carboxylic Acid-2β (Alloecgonine) and of Tropanol-3α-carboxylic Acid-2α (Allopseudoecgonine)

S/079/60/030/05/13/074
B005/B002

methyl ester of tropanone-3-carboxylic acid-2. It depends on the conditions of hydrogenation and on the nature of the reduction agent, as to which isomer is formed. In the catalytic hydrogenation of the methyl ester of tropanone-3-carboxylic acid-2 with Raney nickel as a catalyst, an oily substance was obtained, whose composition and molar refraction correspond to the methyl ester of ecgonine; other constants, however, do not agree with one another. The wide boiling range of the substance obtained and the fact that its iodine methylate already decomposes at 75° beneath its melting point, allow the conclusion to be reached that the substance synthesized is a mixture of isomers III and IV. Refractive index and specific weight of the oil obtained are lower than the corresponding values of ecgonine methyl ester. This is indicative of the fact that the mixture consists in the main of isomers with 2,3-trans-structure; furthermore, the good solubility of oil in ether allows the conclusion that the methyl ester of alloecgonine is chiefly obtained on the catalytic hydrogenation of the methyl ester of tropanone-3-carboxylic

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Synthetic Investigations in the Field of Isomeric Cocaine. V. Synthesis of Methyl Ester of Tropanol-3α-carboxylic Acid-2β (Alloecgonine) and of Tropanol-3α-carboxylic Acid-2α (Allopseudoecgonine)

S/079/60/030/05/13/074
B005/B002

acid-2 in the presence of Raney nickel. The amount of the simultaneously resulting isomeric methyl ester of allopseudoecgonine grows with the conditions of hydrogenation becoming more rigorous. The authors succeeded in separating the two isomeric methyl esters from each other by way of the fractionated distillation of the oil obtained and by the fractionated crystallization of the picrates. Hence, the described reduction of the methyl ester of tropanone-3-carboxylic acid-2 proceeds in steric orientation and leads to the formation of 3-hydroxy-axial isomers. All the operations (catalytic hydrogenation, preparation of picrates, fractionated crystallization, preparation of hydrochlorides of the two isomeric methyl esters) are described in great detail in an experimental part. Yields, melting points (boiling points respectively), and elementary analyses are specified for all of the compounds described. There are 8 references: 3 Soviet, 2 English, and 3 German.

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Synthetic Investigations in the Field of Isomeric Cocaine. V. Synthesis of Methyl Ester of Tropanol-3α-carboxylic Acid-2β (Alloecgonine) and of Tropanol-3α-carboxylic Acid-2α (Allopseudoecgonine)

S/079/60/030/05/13/074
B005/B002

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute of Fine Chemical Technology)

SUBMITTED: June 2, 1959

Card 4/4

BAZILEVSKAYA, G.I.; BAYNOVA, M.S.; DYUMAYEV, K.M.; PREOBRAZHENSKIY, N.A.

Investigations in the synthesis of isomeric cocaines. Part 6: Synthesis of methyl esters of 3β-tropanol-2α-carboxylic acid, pseudoecgonine, and 3β-tropanol-2β-carboxylic acid, ecgonine. Zhur.ob.khim. 30 no.6:2088-2091 Je '60. (MIRA 13:6)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Eggonine) (Pseudoecgonine)

BAYNOVA, M.S.; BAZILEVSKAYA, G.I.; PREOBRAZHENSKIY, N.A.

Synthetic studies of cocaines. Part 7: Synthesis of the racemic stereoisomeric alkaloids cocaine, pseudococaine, allococaine, and allopseudococaine. Zhur.ob.khim. 30 no.10:3258-3261 O '61. (MIRA 14:4)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Alkaloids)

L 59353-65
ACCESSION NR. AP5019332 UR/0020/64/157/003/0599/0602

AUTHOR: Baymova, M. S.; Bazilevskaya, G. I.; Miroshnichenko, L. D.; Preobrazhenskiy, N. A.

TITLE: Conformational investigation in the cocaine series

SOURCE: AN SSSR. Doklady, v. 157, no. 3, 1964, 599-602

TOPIC TAGS: isomer, ester, IR spectrum

ABSTRACT: The infrared adsorption spectra of four stereoisomeric methyl esters of ecgonin, differing in the configuration of the substituents in [illegible] to refine their spatial configurations. [illegible] group forms an intramolecular hydrogen [illegible] most favorable for the appearance of an intramolecular hydrogen bridge. [illegible] tropine and pseudotropine. Other features of the adsorption spectra of the isomers, in particular, the region of the valence vibrations of the C-OH

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L 31333-65
ACCESSION NR: AP5019332

bond of the hydroxyl, are compared with the spectrum of tropine. The infrared spectra of the ecgonine corresponding to the isomeric esters were also studied. They were all found to exist in the solid state in a zwitterion form.

ASSOCIATION: M. V. Lomonosov Institute of Fine Chemical Technology im. M. V.

SUBMITTED: 25Dec63 ENCL: 00 SUB CODE: OC, OP

NR REF SOV: 004 OTHER: 007 JPRS

Card 2/2

BAYNSHTEYN, L. N.

DAYNSHT[illegible]K, V.V.

report presented at the 1st All-Union Congress of Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb '60.

35. [illegible] Borodachev (Kuibyshev): On the solution of the dynamic contact problem for a half-space under conditions of axial symmetry.

36. J. Brilla (Bratislava): Anisotropic plates with discontinuous supports.

37. [illegible] (Moscow): On the essential non-linearity of certain problems on column stability.

38. [illegible] (Kiev), [illegible] (Moscow): On the determination of safety factors under alternating random loads.

39. A. Y. [illegible] (Kharkov): An experimental investigation of creep of turbine diaphragm models.

40. [illegible] (Saratov): On the stability of constructionally anisotropic circular ring plates.

41. [illegible] (Bucharest): The field of application of chronoplasticity.

42. [illegible] Vainberg (Kiev): The state of stress of lamellar systems of regular configuration.

43. V. V. Vainshtok (Moscow): Thixotropic properties of lubricants as [illegible] rheological characteristics.

44. [illegible] Van-Fo-Fi, G. N. Savin (Kiev): Application of Mathieu functions to the investigation of shells.

45. P. M. Varvak (Kiev): Determination of stresses and deformations in massive bodies.

46. [illegible] (Gorkii): The flow of bitumens and filled bitumens in pipes.

47. I. I. Vekua, [illegible] Mushkhelishvili (Tbilisi): Applications of analytic functions in the theory of elasticity.

48. [illegible] (Tbilisi), [illegible] (Erevan): Experimental investigation of the behavior of eccentrically compressed short columns for long loading times.

49. [illegible] Vinogradov (Moscow), [illegible] (Kazan), V. P. Pavlov (Moscow): Investigation of soft plastic bodies under combined states of stress.

50. G. V. Vinogradov, V. P. Pavlov (Moscow): Basic peculiarities of the mechanical properties of plastic lubricants.

51. [illegible] (Leningrad): Fundamentals of the linear theory of visco-elastic impacts.

52. [illegible] (Kharkov): The solution of dynamic contact problems for foundations using a simplified model.

53. [illegible] Vlasov (Moscow): On the equilibrium equations of thick elastic plates.

54. [illegible] (Yakutsk): The creep of ice and frozen soils under combined stresses.

55. M. P. Volarovich, [illegible] (Moscow): Studies of viscoelastic properties of porous bodies (e.g. peat) by the ultrasonic pulse method.

56. M. P. Volarovich (Moscow), A. Kh. [illegible] (Minsk): The plane flow of a visco-plastic medium between two planes forming an acute angle.

57. M. P. Volarovich, [illegible] (Moscow): Kinematics and dynamics of the flow of visco-plastic dispersed media past bodies of different shapes.

58. A. S. Vol'mir (Moscow): On the analysis of a short closed cylindrical shell.

59. [illegible] Volkov, [illegible] (Sverdlovsk): On the distribution of elastic constants in quasi-isotropic polycrystalline media.

60. I. I. Vorovich (Rostov-na-Donu): A statistical method in the stability theory of shells.

61. I. I. Vorovich (Rostov-na-Donu), A. S. Kosmodamianskii (Saratov): On stress concentration in a plane with an infinite number of holes.

62. [illegible] (Leningrad): Foundations of the general engineering theory of elastic beams.

63. S. S. Vialov (Moscow): The laws of deformation of ice.

64. S. S. Vialov (Moscow): The laws of motion of ice crusts and the theory of visco-plastic flow based on research in the Antarctic.

65. [illegible] (Leningrad): A method of obtaining polynomial stress and displacement functions.

66. K. Z. Galimov (Kazan): A contribution to the theory of the finite deformations of thin shells.

67. [illegible] (Moscow): The propagation of elastic-plastic bending and shear waves in the axisymmetrical deformations of shells.

15(2)

AUTHOR: Baynton, P. SOV/72-59-6-18/18

TITLE: Semiconductive Properties of Some Kinds of Vanadate Glass (Poluprovodnikovyye svoystva nekotorykh vanadatnykh stekol)

PERIODICAL: Steklo i keramika, 1959, Nr 6, p 48 (USSR)

ABSTRACT: This is the translation of an article from the English which was published in the periodical Electrochem. Soc. (USA), Nr 4, 1958, pp 237-240. The names of the translator and the abstracter are not given.

Card 1/1

USCOMM-DC-61,217

KIR'YAKOV, G.Z.; BAYONIYETOVA, F.K.

Simultaneous formation of hydrogen and zinc on binary cathodes in the presence of some surface active substances. Izv. AN Kazakh. SSR. Ser.khim. no.1:19-22 '58. (MIRA 12:2)
(Hydrogen) (Zinc) (Surface-active agents)

BAYOR, B.N.

Analyzing the effect of dullness and wear of the grinding wheel on the fluctuations of metal removal in internal grinding. [Trudy] Inst. mash., STMP no.18:61-68 '64. (MIRA 18:4)

SVIRIDA V.G., rukovoditel' raboty; KLYACHKINA, Ye.L.; ZARUBKINA, A.K.; BAYTINA, N.M.; LYUBOSHITS, A.I.; VISHNEVSKIY, S.L.; SHOLOMYANSKIY, Ye.Ya.; BAICVA, M.P.

Experiment in increasing the productive capacity of the Minsk Lactic Acid Factory under the conditions of existing equipment and electric power systems. Trudy BNIIPPT no.4:63-66 '61. (MIRA 17:10)

BAYOREK, Z., kand.tekhn.nauk; LOPUKHINA, Ye.M., kand.tekhn.nauk

Shunt running of asynchronous micromotors. Elektrotekhnika 36 no.11:7-9 N '65.

(MIRA 18:11)

L 3295-66 FSS-2/EWT(1)/EWA(d) GS/GW/WR

ACCESSION NR: AT5024189 UR/0000/65/000/000/0057/0064

AUTHOR: Fialko, Ye. I.; Bayrachenko, I. V.; Chumak, Yu. V.; Moysya, R. I.; Mel'nik, V. I. 39 B+1

TITLE: Statistical characteristics of meteor radio echoes during the 1963 Geminid shower

SOURCE: AN UkrSSR. Fizika komet i meteorov (Physics of comets and meteors). Kiev, Izd-vo Naukova dumka, 1965, 57-64

TOPIC TAGS: radio echo, meteor trail, reflected signal, radar echo, radar meteor observation

ABSTRACT: Statistical characteristics of meteor radio echoes during the 1963 Geminid shower were studied experimentally. The radar equipment used had the following parameters: λ = 9.59 and 6.49 m; power, 20 kev; prf, 500 pps; and pulse duration, 10 μsec. In all, 198—207 meteor radio echoes were used to determine the distribution of radio echoes with respect to duration, amplitude, time interval between echoes, and distance. On the basis of the results obtained, the following conclusions were reached: 1) Distributions of meteor radio echoes with respect to duration at λ = 9.59 m and λ = 6.49 m are practically identical

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L 3295-66
ACCESSION NR: AT5024189

in the region of long durations (>1 sec) and differ slightly in the region of short durations. 2) In the distribution of amplitudes, three groups of reflections are distinguished — stable, intermediate, and unstable. The distribution of intermediate radio echoes is similar to that of stable reflections. 3) Distribution of intervals between appearances of meteor reflections has an exponential character. Orig. art. has: 4 figures and 5 formulas. [JR]

ASSOCIATION: none

SUBMITTED: 21May65 ENCL: 00 SUB CODE: AA, EC

NO REF SOV: 003 OTHER: 002 ATD PRESS: 4113

L 3291-66 EWT(1)/FCC/EWA(d)/EWA(h) GS/GW
ACCESSION NR: AT5024190 UR/0000/65/000/000/0065/0067

AUTHOR: Fialko, Ye. I.; Bayrachenko, I. V.; Chumak, Yu. V.
55 55 55

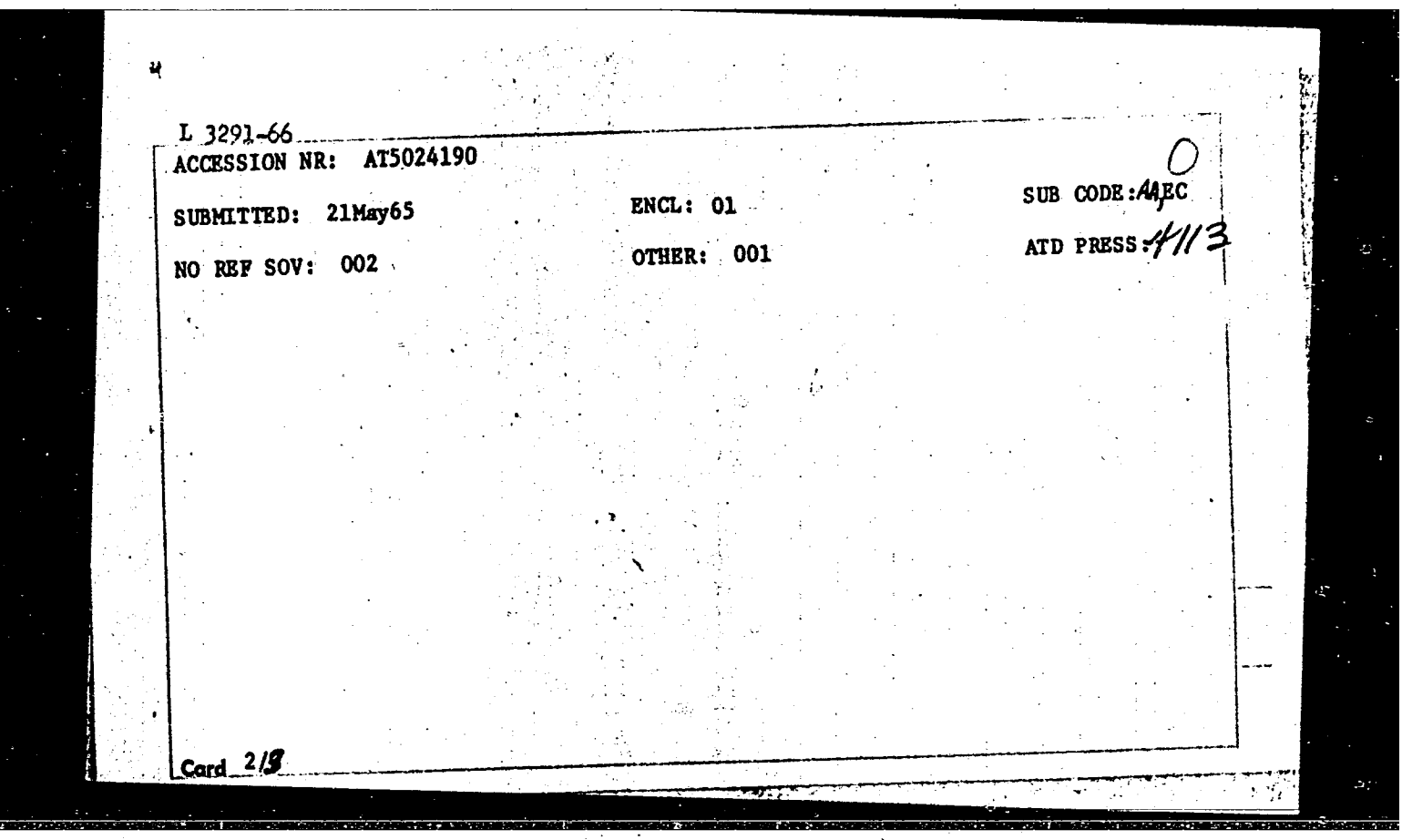
TITLE: Some results of the utilization of intermediate-type trails for measuring the electron density of a meteor trail.

SOURCE: AN UkrSSR. Fizika komet i meteorov (Physics of comets and meteors). Kiev, Izd-vo Naukova dumka, 1965, 65-67

TOPIC TAGS: meteor trail, radar meteor observation, radio echo, electron density, mathematic method

ABSTRACT: Linear electron density α of ionized meteor trails was determined from radar observations of intermediate-type trails at $\lambda = 9.59$ m. The observations were conducted by Kiev State University in 1963. The method is based on the dependence of intermediate-type radio echoes on α. The distribution of α was determined within the range of 10^{12} to 5×10^{12} el/cm. Distribution of intermediate-type trails according to α is shown in Fig. 1 of Enclosure, where n is the number of trails in which electron density α exceeded a given value. Orig. art. has: 1 figure and 1 formula. [KM]

ASSOCIATION: none
Card 1/3



L 3291-66

ACCESSION NR: AT5024190

SUBMITTED: 21May65 ENCL: 01 SUB CODE: AA,EC

NO REF SOV: 002 OTHER: 001 ATD PRESS: 4113

Card 2/3

L 3291-66

ACCESSION NR: AT5024190

ENCLOSURE: 01

Fig. 1. Distribution of intermediate-type trails according to α

Card 3/3

BAYRACHENKO, I.V.; MIZERNYUK, A.T.; VSEKHSVYATSKAYA, Yu.S.; SHKURDODA, V.F.

Radar observations of meteoric activity in January-March 1958.
Biul. Kom. po komet i meteor. AN SSSR no.3:15-18 '58 (MIRA 13:3)

1. Kiyevskiy gosudarstvennyy institut.
(Meteors)

BAYRACHENKO, I.V.; USEKHSVYATSKAYA, I.S.; MIZERNYUK, A.T.; SHKURDODA, V.F.

Some results of radar observations of meteor activity. Mezhdunar. geofiz. god [Kiev] no.2:75-78 '60. (MIRA 14:1)

1. Kiyev State University.
(Meteors) (Radar in astronomy)

41273

S/035/62/000/010/019/128
A001/A101

AUTHORS: Kruchinenko, V. G., Moysya, R. I., Bayrachenko, I. V.

TITLE: Radar observations of meteor streams

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 10, 1962, 41-42, abstract 10A307 ("Sb. rabot po Mezhdunar. geofiz. godu. Kiyevsk. un-t", 1961, no. 1, 26 - 36)

TEXT: The Kiyev University conducted radar measurements of meteor numbers on the 4-m wavelength from January 1, 1958, to December 1, 1959. 33, 670 meteors were recorded during 6,490 hours of observations. Equipment characteristics are as follows: emitter's pulse power, 80 kw; pulse duration, 8 μsec; frequency of pulse repetition, 50 cps; receiver sensitivity, 10 μv. The nine-element antenna of the "wave channel" type at a height of 7 m over the ground surface is oriented in east-west direction. Reflected signals were photorecorded on a film whose movement speed was 90 mm per hour. For each meteor were determined the time of appearance, distance and duration of reflection τ. During the period of active meteor streams, mass (m) distribution of meteoric bodies was obtained. The

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S/035/62/000/010/019/128
A001/A101

Radar observations of meteor streams

The relation $\tau = Am^{1.15}$ is assumed, where A is a function of meteor velocity v. The differential mass distribution of meteoric bodies is described by the relation: $N \sim m^{-s}$. The following dependence of meteor luminosity I on m, v and zenith distance of the radiant z_R is adopted: $I \sim mv^3 \cos z$, as well as the scale of masses in which a $+2^m,86$ meteor is originated by a meteoric body with m=1 g, v=10 km/sec and $z_R=0$. A $+2^m,4$ meteor corresponds to duration $\tau = 1$ sec. In the Geminid stream, parameter s varies systematically during the visibility of the stream. The values: 2.5; 2.2; 2.0; 1.7; 1.4 and 1.8 are obtained for the successive nights of December 9 - 15. For the Arietid stream, the average value of s = 2.23. In the Perseid stream of 1958 the s-value changes from 1.83 on August 6 - 8 to 1.65 on August 11 - 14. In the 1958 Orionid stream s = 1.80, and in the 1958 Quadrantid stream s = 1.72. There are 8 references..

V. Lebedinets

[Abstracter's note: Complete translation]

Card 2/2

S/169/62/000/005/067/093
D228/D307

3.2440

AUTHORS: Bayrachenko, I. V., Mizernyuk, A. T., and Moysya, R. I.

TITLE: Some results of meteor observation by the radar method

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 5, 1962, 5, abstract 5G36 (Visnyk Kyyvsk. un-tu, 1960 (1961), no. 3, ser. astron. fiz. ta khimii, vyp. 2, 47-54)

TEXT: Some results of radar observations of meteors, fulfilled according to the IGY program, are given. The observations were made from January 1958 to August 1959; during 5000 hrs of work 28,000 reflections from meteor trails were recorded. The annual variation in the number of meteors is cited. The meteor activity maximum falls in the summer and autumn months. The average hourly number of meteors in the summer months of 1959 was somewhat less than in the analogous period of 1958. The range distribution of radio-echoes leads to the conclusion that it is necessary to take into account the lobing of the antenna directivity pattern when interpreting the results. The lobing of the antenna directivity pattern explains the

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presence of several maxima in certain flows, though the daytime maximum of the Perseids appears to be due to the structure of the flow itself. The distributions of the hourly numbers were constructed for the Arietid (June 8, 1958), Perseid (August 12, 1958 and 1959), Orionid (October 23, 1958), and Quadrantid (January 2 and 4, 1959) flows. The parameter, characterizing the mass distribution of meteor bodies, was calculated for the Arietid, Perseid, and Geminid flows and for sporadic meteors. The results of the calculations agree well with data obtained by Soviet and foreign authors. The distribution of the time intervals between adjacent radioechoes was investigated; this allowed the hypothesis about the existence of the space grouping of meteors to be verified. The experiment's result shows that there is no space grouping of meteors, belonging to meteorite flows. [Abstracter's note: Complete translation.]

S/169/62/000/005/068/093
D228/D307

AUTHORS: Kruchinenko, V. G., Moysya, R. I. and Bayrachenko, I.V.

TITLE: Radar observations of meteor flows

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 5,1962, 5, abstract 5G37 (Sb. rabot po Mezhdunar. geofiz. godu, Kiyevsk, un-t, no. 1, 1961, 26-36)

TEXT: Observations were made in accordance with the program of the IGY and the IGC near the city of Kiyev. The results of the observations are given together with the method by which they were processed. [Abstracter's note: Complete translation.]

Card 1/1

41275
S/035/62/000/010/022/128
A001/A101

AUTHORS: Bayrachenko, I. V., Moysya, R. I.,

TITLE: A radar installation at 8-m wavelength band for meteor studies

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 10, 1962, 43, abstract 10A312 ("Sb. rabot po Mezhdunar. geofiz. godu. Kiyevsk. un-t", 1961, no. 1, 44 - 48)

TEXT: The authors describe a radar installation intended for meteor studies. Advantages of conducting investigations at 6 - 10 m wavelengths are pointed out. A block-diagram of the emitter operating on ГИ-1 (GI-1) tubes is presented. The technical characteristics of the emitter are as follows: $\lambda \sim 8$ m; frequency of pulses, 50 cps; pulse power, 60 kw; pulse duration, 10 μsec. Two antennas are used when the installation is operating: the emitting one - a semi-wave vibrator, and the receiving one - a vibrator with a reflector. The receiver is of a superheterodyne type with double frequency change. The schematic diagram of an indicator device for recording reflections from meteors is presented. Suppression of pulse noises is provided in the recording system (RZhAstr, 1959, no. 4, 2798) and registration

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S/035/62/000/010/022/128
A001/A101

A radar installation at...

of reflection from one meteor in the form of two brightness marks (RZhAstr, 1959, no. 3, 1955). The authors propose a calibrating scheme using durations of recorded reflections from meteors.

B. K.

[Abstracter's note: Complete translation]

Card 2/2

L1960
S/194/62/000/009/079/100
D413/D308

9,1483

AUTHORS: Bayrachenko, I. V. and Podgorodetskiy, Ye. D.

TITLE: Equipment for experimental investigation of the scattering of radio waves by meteor trails

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 9, 1962, abstract 9-7-54 ts (Sb. rabot po Mezhdunar. geofiz. godu, Kiyevsk. un-t, no. 1, 1961, 49-51)

TEXT: Indicating and recording equipment has been developed for investigating the scattering of radio waves by meteor trails. The design of the equipment provides for simultaneous observation on 31, 36, 72 and 213 Mc/s. It removes errors in the film transport mechanism by a mechanical relay, and projects the screens of all the CRT's and a clock onto a single film. 5 references. [Abstracter's note: Complete translation.]

Card 1/1

43286

S/051/62/000/008/007/016
E032/E114

AUTHORS: ~~Bayrachenko, I.V.,~~ Mizernyuk, A.T., Shkurdoda, V.F., and Moysya, R.I.

TITLE: Radar observations of meteoric activity at Kiev

SOURCE: Ionosfernyye issledovaniya (meteory). Sbornik statey, no.8, V razdel programmy MGG (ionosfera). Mezhduved. geofiz. kom. AN SSSR. Moscow, Izd-vo AN SSSR, 1962, 51-55

TEXT: These observations were carried out at the observation station of the Kiyevskiy gosudarstvennyy universitet (Kiev State University) in the village of Tripol'ye in accordance with the IGY programme (carrier frequency 72.4 Mc/sec, repetition frequency 50 cps, power per pulse 80 kW). A nine-element Yagi antenna was employed. The beamwidth at half-power points was 40°. The reflections were recorded on a moving film and radio echoes from oblique ranges of up to 500 km could be recorded. Special measures were taken to suppress atmospheric and industrial interference. An attachment developed by the Khar'kovskiy politekhnicheskiy institut (Khar'kov Polytechnical Institute) was

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used for this purpose and was based on the fact that the radar pulses were much longer than the interference pulses, so that the noise frequency spectrum was much broader. In the receiver, one channel was tuned to the carrier frequency of the transmitter and the other was detuned for this frequency. Thus, the first channel output included both signal and noise, while the second channel output consisted of noise only. The useful signal was separated out by means of a coincidence circuit. The meteor activity was investigated during the second half of 1957 and during 1958. More than 20 000 radio echoes were recorded in 3800 hours, and a calendar of the observations is reproduced.
There is 1 table.

BAYRACHENKO, I.V.

Resonance effects in radio wave scattering on meteor trails and their models. Geomag. i aer. 4 no.2:313-320 Mr-Ap '64.
(MIRA 17:4)

1. Kiyevskiy gosudarstvennyy universitet.

ACCESSION NR: AT4034464 S/3091/63/000/002/0040/0055

AUTHOR: Moysya, R. I.; Kruchinenko, V. G.; Bayrachenko, I. V.

TITLE: Influence of the directional diagram of an antenna on the observed mass distribution of meteors

SOURCE: Kiyev. Universitet. Sbornik rabot po Mezhdunarodnomu geofizicheskomu godu, no. 2, 1963, 40-55

TOPIC TAGS: astronomy, meteor astronomy, meteor, antenna directional diagram, meteor trail, meteor mass distribution

ABSTRACT: There are several methods for determining the exponents in the mass distribution law for meteors when using data from radar observations. One of the most common methods is based on the measured distribution of the duration of radio meteors. The derived theoretical expressions are correct only for the case of reception of signals from a narrow sector of the directional diagram. In a real case reception always is from the entire region of the diagram and the amplification factor of the antenna changes as a function of direction. In this article the authors attempt to take into account the influence of the antenna directional diagram in the vertical plane on the results of radar meteor observations. The article begins with a discussion of certain problems in the theory of scattering

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ACCESSION NR: AT4034464

of radio waves on meteor trails and the method for selecting the range of electron densities and masses; this entire section is based almost entirely on non-Soviet published sources. The authors present the derivation of the principal relations required for solution of the problem and discuss the method for processing data. Solution of the problem required the introduction of many simplifying assumptions. The problem is limited to the influence of the antenna directional diagram in the vertical plane; the similar problem for the horizontal plane will be considered in a separate article. A final expression is obtained for the integral law of mass distribution of the recorded meteors with the influence of the directional diagram taken into account. The problem also involved a comparison for different antennas differing from one another in the form and degree of directivity. It was found that the distribution of meteor bodies by mass differs when the influence of the directional diagram is taken into account from the distribution law actually existing in space. The difference is particularly well-expressed in the region of small masses. The influence of the form of the directional diagram is relatively small; this influence also is expressed most clearly in the region of small masses. Orig. art. has: 60 formulas, 12 figures and 1 table.

ASSOCIATION: Kiyevskiy universitet (Kiev University)

SUBMITTED: 00 DATE ACQ: 07May64 ENCL: 00

Card 2/2 SUB CODE: AA NO REF SOV: 004 OTHER: 007

ACCESSION NR: AT4032228 S/3089/63/000/005/0293/0297

AUTHOR: Kruchinenko, V. G.; Moysya, R. I.; Bayrachenko, I. V.

TITLE: Determination of the true number of meteors using radar observation data

SOURCE: AN UkrSSR. Mezhduvedomstvenny*y geofizicheskiy komitet. Geofizika i astronomiya; informatsionny*y byulleten', no. 5, 1963, 293-297

TOPIC TAGS: meteor, meteor astronomy, astronomy, radar, antenna directional diagram, upper atmosphere, radio meteor

ABSTRACT: In processing the radar observations of meteor activity it is necessary to convert properly from the observed number of radar echoes to the true number of meteors for a certain sector of the sky. In this process it is necessary to take into account the influence of the three-dimensional form of the directional diagram of the radar antenna. In this paper the author cites the principal formulas used in connection with radar observations of meteors and derives a general expression for the integral distribution of meteor bodies by masses with allowance for the influence of the directional diagram. The necessary formulas are cited for conversion from the observed to the true number of radio meteors. On the basis of the cited formulas, and with certain simplifying assumptions, it

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ACCESSION NR: AT4032228

is possible to determine the total increment of the earth's mass during a year from the falling of meteor matter. The derived annual value is approximately 1,120 metric tons. Orig. art. has: 22 formulas and 1 figure.

ASSOCIATION: Astronomicheskaya observatoriya Kiyevskogo gosudarstvennogo universiteta (Astronomical Observatory, Kiev State University)

SUBMITTED: 00	DATE ACQ: 16Apr64	ENCL: 00
SUB CODE: AA	NO REF SOV: 006	OTHER: 001

Card 2/2

ACC NR: AR6019485 SOURCE CODE: UR/0269/66/000/002/0075/0076

AUTHOR: Bayrachenko, I. V.

TITLE: Nature of the radio echo from the head of a meteor

SOURCE: Ref. zh. Astronomiya, Abs. 2.51.581

REF SOURCE: Visnyk Kyyivs'k. un-tu. Ser. astron., no. 6, 1964, 92-97

TOPIC TAGS: meteor observation, radio echo, meteor trail

ABSTRACT: Various theories on the radio echo from a meteor headare discussed. The Braun-Kayser diffraction theory does not explain the phenomena observed because the authors applied it to unsaturated meteor trails, whereas the echoes were observed most often during the scattering of radio waves on saturated meteor trails. The Cook and Eockins theory, which is based on the McKinley and Millman hypothesis on the ultraviolet radiation of a meteor as the source of ionization in the front of the meteoric body, was not confirmed experimentally and cannot explain the short-lived character of the radio echo echo from the meteor head. A qualitative explanation is given of the nature of the radio echo from a meteor head. It is based on the conventional theory of the formation and disintegration of ionized meteor trails. It was shown that the following is necessary for the formation of the echo: (1) the formation of a trail at an altitude of ~100 km, which occurs in fast meteoric bodies, (2) a large radiant

Card 1/2 UDC: 523.53

ACCESSION NR: AP4031636 S/0203/64/004/002/0313/0320

AUTHOR: Bayrachenko, I. V.

TITLE: Resonance phenomena during scattering of radio waves at meteor trails and their models

SOURCE: Geomagnetizm i aeronomiya, v. 4, no. 2, 1964, 313-320

TOPIC TAGS: radio wave scattering, meteor trail, resonance scattering, plasma resonance, gas discharge tube, dielectric constant

ABSTRACT: The author has used a cylindrical gas-discharge tube as a model of a meteor trail. The length and cross section were chosen in keeping with the range of waves considered in the model experiment. To obtain the necessary concentration of charged particles, it proved most convenient to employ a model in the centimeter range of waves. On this basis the author has furnished experimental data on resonance scattering of radio waves at this model of a meteor trail. He has found that the phenomenon of plasma resonance begins at linear electron densities of 10^{12} electrons per centimeter, but at this concentration the value of the averaged dielectric constant of the plasma must be negative. When radio waves of transverse

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L 63562-65 EWT(1)/EWG(v)/EWA(d)/EEC-4/EEC(t)/EWA(h) Pz-6/Pu-5/Pae-2/Peb/
ACCESSION NR: AP5014[illegible] UR/0203/65/005/003/0460/0464

AUTHOR: Bayrachenko, I. V.

TITLE: Measurements of initial radii of ionized meteor trails based on the simultaneous observations of radiometers at two wavelengths

SOURCE: Geomagnetizm i aeronomiya, v. 5, no. 3, 1965, 460-464

TOPIC TAGS: radio echo, meteor trail, meteor trail measurement

ABSTRACT: Initial radii of ionized meteor trails were determined on the basis of radio echo amplitude at two distinct wavelengths, the distance from observation points to meteor, and meteor velocity. A special apparatus was employed capable of measuring the amplitude-time characteristics of a meteor trail on two wavelengths. Carrier frequencies of 31.25 and 46.2 Mc were transmitted at 500 pps. The duration of the emitted pulses was 10 μsec, and the pulse power was regulated within [illegible] kw. The transmitting and receiving units used four-element waveduct antennas located 7.5 m above 7 x 60 m platforms oriented toward the west. The indicator assembly contained two two-gun CR tubes: two slow-sweep traces were used for amplitude-time display of echoes and two for meteor slant range measurement. The

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L 63562-65

ACCESSION NR: AP5014106

0.11-sec sweep duration permitted the measurement of meteor velocity. The amplitude-time characteristics of the radio echo from the meteor trail region appearing on the indicator screen were automatically photograph[illegible]. The measurements were conducted for a total of [illegible] hours during October—December 196[illegible]. A 9-m dev[illegible] picked up [illegible]660 useful radio echo signals from 300 meteor paths, and a 6-m device recorded 9[illegible] echos from 17[illegible] meteor paths. From these, 50 [illegible] were chosen for computation. The average [illegible] was found to [illegible] km[illegible], the [illegible] of diffusion [illegible], and the average initial radius of a meteor trail was found to be [illegible]. [illegible] 4 figures and 10 formulas.
[TS]

[illegible] University)

SUBMITTED: [illegible]Apr[illegible] ENCL: [illegible] SUB CODE: [illegible]

NO REF SOV: 00[illegible] OTHER: [illegible] ATD PRESS: [illegible]

Card 2/2

L 04098-67 EWT(1)/FSS-2 GW/WR

ACC NR: AR6023287 SOURCE CODE: UR/0058/66/000/003/H057/H057

38

AUTHOR: Bayrachenko, I. V.

TITLE: Nature of radio echo from the heat of a meteor 24

B

SOURCE: Ref zh. Fizika, Abs. 3Zh396

REF SOURCE: Pro pryrodu radioluny vid holovy meteora. Visnyk Kyyivs'k. un-tu. Ser. astron., no. 6, 1964, 92-97

TOPIC TAGS: meteor tracking, radar meteor observation, meteor trail, radio echo

ABSTRACT: The author discusses critically different opinions concerning the nature of radio echoes from the frontal part of a meteor trail (diffraction theory, ultraviolet hypothesis). A qualitative explanation of the nature of radio echo from the frontal part of the meteor trail is presented, starting from the usual theory of formation and destruction of ionized meteor trails. To obtain a moving radio echo it is necessary to have the following: a) the trail must be produced at an altitude on the order of 100 km, i.e., the meteor body should enter the atmosphere of the earth with sufficiently large velocity, b) the zenith angle of the meteor radiant should be large, c) the surface of the critical density of the electrons in the trail should be approximated by an ellipsoid of revolution. A possible condition for the occurrence of radio echoes from the head of the meteor is the breakup of meteoric bodies. [Translation of abstract]

SUB CODE: 03,20
KN

Card 1/1

L 45241-66 FSS-2/EWT(1) GW/WR

ACC NR: AR6023289 SOURCE CODE: UR/0058/66/000/003/H057/H057

AUTHOR: Moysya, R. I.; Bayrachenko, I. V.; Mel' nyk, V. I. 45 B

ORG: none

TITLE: Radar system for velocity measurements of meteors

SOURCE: Ref. zh. Fizika, Abs. 3Zh399

REF SOURCE: Radiolokatsiyna ustanovka dlya vymiryuvannya shvydkostey meteoriv. Visnyk Kyyivs' k. un-tu. Ser. astron., no. 6, 1964, 115-119

TOPIC TAGS: radar system, velocity measurement, meteor

ABSTRACT: The block-diagram and some assemblies of a radar system designed to measure meteor velocities are described. The basic parameters of the system are as follows: wavelength—6.49 m, pulse duration—10 μsec, repetition frequency—400 pulses/sec, pulse power—50 kw, receiver sensitivity—5 μv. [Translation of abstract] [DW]

SUB CODE: 09/

Card 1/1 LC

L 08928-67 EWT(1) GW

ACC NR: AR6025345 SOURCE CODE: UR/0269/66/000/004/0055/0055

AUTHOR: Bayrachenko, I. V.; Mel'nik, V. I.; Moysya, R. I. 43

TITLE: Some results of meteor observations on two wavelenths

SOURCE: Ref. zh. Astronomiya, Abs. 4.51.435

REF SOURCE: Geofiz. i astron. Inform. byul., no.8, 1965, 25-28

TOPIC TAGS: ~~meteronomy~~, radio astronomy, meteor, meteor trace radius

ABSTRACT: On the station "Tripol'ye" of the Kiyev university, radiolocational observations of meteors on the 31.26 and 46.2 mc were conducted during October-December 1963. Based upon an analysis of common amplitude/time characteristics, the initial radii of the ionized meteoric traces were determined. The average magnitude of the initial radius was $r_o = 1$ m. The dependence of r_o on atmospheric density is proposed in the form: $r_o \sim \rho^{-.82}$. The dependence of the initial radius upon meteor velocity, v, has been obtained in the form v: $r_o \sim v^{.33}$. [Translation of abstract].

SUB CODE: 03

Card 1/1 egk UDC 523.164.85

L 10297-66 FSS-2/EWT(1)/EWA(d) GW/WR

ACC NR: AT5028298 SOURCE CODE: UR/3133/65/000/008/0026/0028

AUTHOR: Bayrachenko, I. V.; Mel'nik, V. I.; Moysya, R. I.

ORG: Kiev State University (Kiyevskiy gosudarstvennyy universitet)

TITLE: Some results of meteor observations at two wavelengths

SOURCE: AN UkrSSR. Mezhduvedomstvennyy geofizicheskiy komitet. Informatsionnyy byulleten', no. 8, 1965. Geofizika i astronomiya (Geophysics and astronomy), 26-28

TOPIC TAGS: meteor trail, radar meteor observation, riometer

ABSTRACT: In order to study the problem of interaction of radio waves with ionized meteor trails, a special radar system was developed which makes it possible to obtain amplitude-time characteristics of a single meteor trail at two wavelengths. The system has the following parameters: carrier frequencies, 31.26 Mc (λ = 9.59 m) and 46.2 Mc (λ = 6.49 m); pulse repetition rate, 500 pps; and pulse width, 10 μsec. Observations of meteor trails were conducted from October through December, 1963. The initial radius of a meteor trail was determined from the general amplitude-time characteristics obtained at the two wavelengths. This initial radius was found to depend on altitude not only when the mean free path of air particles is changed but also when the initial energy of evaporating free atoms is changed, since the average altitude of radio echoes is a function of meteor velocity. Orig. art. has: 4 figures. [JR]

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L 10297-66

ACC NR: AT5028298

SUB CODE: 03, 17/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 001/ ATD PRESS: 4166

Card

L 01206-67 EWT(d)/FSS-2/EWT(1) RTW/GW

ACC NR: AT6032436 SOURCE CODE: UR/3133/66/000/009/0153/0156

AUTHOR: Bayrachenko, I. V.

50
Brl

ORG: Kiev State University (Kiyevskiy gosudarstvennyy universitet)

TITLE: The nature of resonance phenomena during radio wave scattering by meteor-trail models

12 9

SOURCE: AN UkrSSR. Mezhduvedomstvennyy geofizicheskiy komitet. Informatsionnyy byulleten', no. 9, 1966. Geofizika i astronomiya, 153-156

TOPIC TAGS: radio wave scattering, meteor trail, plasma resonance

ABSTRACT: Theories on the nature of plasma resonance are reviewed on the basis of experimental data on resonance scattering of radio waves by models of meteor trails. Experiments were conducted at λ = 8—13 m with a cylindrical gas-discharge tube (inside diameter, 1.02 cm; length, 70 cm) containing mercury vapor. During the transverse polarization of an incident wave with variations in the discharge current, a series of reflected signal maxima, believed to be caused by resonance phenomena was observed. Fundamental and higher resonance modes were observed, which behaved similarly under various conditions of scattering. Theories based on models of cold plasma could not be confirmed experimentally. Higher resonance modes are attributed to the motion of hot electrons. This phenomenon indicates an interaction between the

Card 1/2